

SCOPE OF WORK AND SPECIAL CONDITIONS OF THE CONTRACT.

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1. DEFINITIONS

Owner	POWERGRID LIMITED /SPV OF POWERGRID
Service Provider	The party/ contractor who gets this award for the work of field quality assurance and final check
Contractor	Construction Agency, who is constructing the transmission line package for Owner.
SFQP	Standard Field Quality Plan
Project	Transmission system for
LOA	Letter of Award
Approved Documents	Approved drawings, technical specifications, construction manuals, formats, procedures, SFQP documents, or any other document which shall be provided by Owner to Service Provider for the execution of contracts.
FQR	Field quality report(s)
PPE	Personal Protective Equipment
T&P	Tools and Plants.
FQA	Field Quality Assurance.
Regions	NR I/NR II/NR III/NER/ER I/ER II/WR I/WR II/SR I/SR II (which ever applicable)
RHQ	Regional head quarter
L2 network	Level-2 PERT Network for work schedule
OPGW	Optical ground wire
Punch Point	Pending balance work required for completion of the Project
Relevant Field	This includes areas of experience like quality assurance during construction of transmission system includes civil works, tower erection, stringing and final checking.

2. PROJECT INFORMATION

Scope involves the field quality assurance including final checking through experienced engineers and skilled resources of Service Provider, during the construction of the transmission line(s) in strict adherence to Owner's Approved Documents. The construction work of below transmission line(s) has/have already been awarded by the Owner to their respective Contractor given below on turnkey basis,

SL No	Package Name	Name of transmission line	Contractor to whom construction work awarded to	Approx. Length of line under the package (Km)	Approx. No. of location in line under the package	Duration as per LOA of the Contractor
01	Package Transmission Line	M/s..... months
02						
03						

The length of line and numbers of towers / spans given above are tentative and may vary during detailed survey and execution stage.

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3. STAGES OF THE PROJECT EXECUTION

The various stages of construction of transmission lines are as follows:

- a) Tower/Pole foundation
- b) Tower/Pole erection
- c) Stringing of transmission line
- d) Final checking of transmission line
- e) Verification of Punch Point dilution by Contractor

4. SCOPE OF WORK AND SERVICES

- (i) On behalf of the Owner, witnessing and ensuring the field quality assurance during construction and carry out final checking after completion of transmission line strictly as per the Documents duly provided by the Employer, pertaining to the different stages of the construction and field quality plan.
- (ii) On behalf of the Owner, checking of the quality of construction activities like tower foundation, tower erection, stringing & final Checking (including submission of report) as per approved drawings and Standard Technical specification of transmission line project.

(iii) The activities to be performed shall include, but not limited to, the following:

(A) Foundation for Tower, Pole including special foundation viz Pile, Pier, Raft etc

- (i) Checking and documents review of construction raw material as per SFQP/TS/approved drawings.
- (ii) Checking of Pit marking, level and dimensions as per approved drawings/TS/SFQP.
- (iii) Checking of reinforcement placement and binding as per approved drawings/TS/SFQP.
- (iv) Other quality checks / tests for concreting works as per SFQP/drawing provided by the Employer.
- (v) Checking of cast concrete as per approved drawings/TS/SFQP.
- (vi) Foundation back-to-back, diagonal at the top of the stub, center location of foundation, level of the top point of all stubs shall be checked using total station or DGPS & to be recorded for all foundation locations before and after concreting.
- (vii) Checking of Benching/ Revetment if any as per standard /approved drawings.

(B) Erection of Tower, Pole etc.

- (i) Checking of Erection works as per SFQP/TS/ Tower erection manual Vol. IV (Rev. 01).
- (ii) Check for completeness including number plate /danger plate /phase plate /circuit plate /Bird Guard/ Anticlimbing device/Bird Diverters/span markers/ Aviation lights /step bolts /earthing for each tower as per approved drawing/BOM /Technical specification.
- (iii) Checking of tack welding of bolts and nuts and painting with zinc rich primer/paint as per approved drawing/BOM /Technical specification and defects if any to be informed to Employer.
- (iv) Check for any open holes .
- (v) Preparation of report for readiness of tower for stringing works.

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(vi) Verification of documents for Verticality of Tower for each location.

(vii) Other physical checking as per POWERGRID checklist.

(C) Document verification for SFQP for Stringing works

(i) Insulators: Visual check for cleanliness/cracks/glazing/white spots/traceability.

(ii) Conductor: Visual inspection of conductor, for any defects, repair sleeves, mid space joint, bulging, thread cuts, unwanted material etc as per the POWERGRID checklist and documents.

(iii) Monitoring of stringing works.

(iv) Check for jumpering and other components as per POWERGRID checklist/ standard drawings.

(v) Check for placement of spacer/damper and other conductor accessories.

(vi) Check for placement of copper bond and other Earth wire accessories.

(vii) Checking of sagging of conductor.

(viii) Thorough inspection of the line corridor for Trees, Huts, or any other structures.

(D) Completing the documents for Final Checking of Transmission line as per Employer checklist (Check list attached)

5. Methodology of Final Checking of Transmission line: Patrolling of towers is to be carried out using 50X or above optical zoom point and shoot camera having GPS enabled feature. The patrolling team shall focus on capturing defects in both the lower and upper portion of tower using optical zoom of the camera. As a record of patrolling, following photographs of each tower patrolled shall be captured by patrolling team:

a) Photograph covering complete tower and nearby terrain.

b) For capturing any defect in upper portion of towers, following numbers of closed photographs are to be taken.

Type of Tower	Main Component	Sub-components to be Checked	No. of photographs to be taken
All towers	Insulators	CC Ring, Grading ring, insulator surface, arcing horns, hardware cotter pins etc.	1 of each String end
All towers	Earth peaks	Earth wire/OPGW, Copper bond, nut bolts/ members, vibration damper	1 of each peak
All towers	Cross arms	Bird guard, nut bolts/ members, foreign material etc	1 of each cross arm

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Tension towers	Jumper	Jumper pads, jumper bolts, rigid spacers, jumper drop etc.	1 of each Jumper Pads and 1 of each jumper
All towers	Main tower body above crossarm level	Nut bolts/members, foreign material etc.	1 no. per Phase

- c) Any loose/ missing/ hanging members and nut bolts in upper portion of towers are to identified and close photograph indicating the defects, is to be taken.
- d) One photograph indicating forward span covering any tree infringement/ building in ROW/ broken/loose spacer dampers, damaged conductor etc.
- e) For capturing any defect in the lower portion of towers, the following numbers of closed photographs are to be taken.

Type of Tower	Main component	Sub-components to be checked	No. of Photographs To be taken
All towers	Tower leg	Foundation, coping, counterpoise earthing, joint plates, bolts and nuts etc.	1 of each leg
All towers	Main tower body below crossarm level	Nut bolts /members, foreign material etc.	1 no. per Phase

The photographs captured above should have enabled GPS co-ordinates in the image property for proper storage management of photographs and mapping purpose. All photographs captured during patrolling are to be handed over to POWERGRID. No photographs shall be retained/ published/stored by Patrolling team other than above work.

- f) **Weekly and Monthly status and FQR (Field Quality Report)** shall be submitted by Service Provider to Owner for all activities as per agreed format with officer-in-charge of the Owner, with clear mention of any exceptions, deviations and/or non-conformity with respect to Approved Documents, if any, as per Owner supplied/ mutually agreed formats. The reports should contain digital photographs with a high-resolution GPS enabled camera. Copy of Monthly report to be also forwarded to Regional FQA department.
- g) Any non-conformity by Contractor which is observed by Service Provider at any time, same shall be informed to Engineer-in-charge of Owner and/or other staff involved in construction activity from Owner side.

6. STATUTORY OBLIGATIONS

It shall be the responsibility of the Service Provider to comply with all statutory obligations under various enactments which are applicable to the Service Provider for carrying out the intact work under the contract. The Service Provider shall be responsible to secure compliance with all Central & State Government laws as well as Rules, Regulations. All manpower along with their insurance policies as per statutory requirement etc. shall be in the scope of Service Provider. It is the responsibility of Service Provider to fulfil the following requirement along with its subsequent amendments, (but not limited to the list) given below:

- a) Safety of manpower engaged.
b) Labour law and regulation

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- c) Minimum wages act 1948
- d) Payment of wages act 1936
- e) The Contract Labour (Regulation & Abolition) Act 1970
- f) The Child Labour (Regulation and Abolition) Act, 1986
- g) The Equal Remuneration Act, 1976.
- h) The Workmen Compensation Act, 1923
- i) The Employees Provident Fund (PF) and Miscellaneous Provisions Act.1952
- j) The Employees State Insurance (ESI) Act 1948.
- k) Observance of SA: 8000 Standards.
- l) Quality standards

Service Provider shall be responsible for satisfying all labour laws and statutory requirement including but not limited like minimum wages, compensation etc of all the working states pertaining to their scope of work. It is the responsibility of Service Provider to take all policies like insurance / workmen compensation etc.

7. REPORTING AND COMMUNICATION

- (i) Service Provider shall immediately report to engineer-in-charge of Owner's respective site and mobilize the required manpower/ resources within Fifteen (15) working days from the date of receipt of formal notification of award from Owner or its authorized representative.
- (ii) All required manpower/ material, logistics, T&P, testing equipment, field quality kits, PPE and other resources needed for successful execution of the scope of work under this contract shall be in the scope of Service Provider.
- (iii) Service Provider shall coordinate with Contractor and Owner to get the actual execution plan, status, progress, for discharging is obligation under this contract.
- (iv) Once the formal inspection call is raised from the Contractor, the Service Provider shall attend the call without any delay on the proposed day by the Contractor. The Contractor shall raise/ inform formal call at least one day in advance to Service Provider.
- (v) Clear access shall be made available by the Owner to the Service Provider without any hinderances and safety issues to its personnel.
- (vi) Service Provider shall report for all the issues during the currency of the contract to Engineer-in-charge of the Owner deployed for the line under construction.
- (vii) For any Approved Documents related issues Service Provider shall refer the matter to the head of Engineering and to the head of the region, with a copy to engineer-in-charge of the Owner deployed for the line under construction.

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8. NON PERFORMANCE OF SERVICE PROVIDER

- (i) If Service Provider fail to deploy required manpower after getting call from Owner and/or Contractor and required witnessing /monitoring /reporting of the work by Service provider is not performed, recovery shall be made by Owners on prorata basis with Overhead of 15% of the rate of BOQ for non-performed portion of the work. If the Service Provider could prove that this non-performance is due to force majeure and beyond his control, the recovery shall be on prorata basis at the rate of BOQ.
- (ii) Notwithstanding to clause (1) above, in case deputed engineer/technician/manpower of Service Provider goes on leave (>7days) or leaves without informing to Owner, the Service Provider will have to make suitable alternative arrangements immediately of service interruption without any cost to Owner. If Service Provider fails to do so, Owner may hire service from other agency at risk and cost of Service Provider by giving a notice of the 7 days.
- (iii) In case the performance of any manpower deployed by the Service Provider is found to be unsatisfactory or found to be indulged in any malpractices, the Service Provider shall immediately remove him/her from the project and to arrange replacement of above manpower within 15 days.
- (iv) In case of work stops due to reasons on the part of Owner and /or Contractor for more than a month, the mobilization and demobilization cost of manpower/material /T&P, shall be reimbursed by Owner on submission of claim with documentary evidence. Any claim older than 06 months in this regard shall not be entertained by Owner.
- (v) If any quality deficiencies are observed by our Asset Management team during final checking of TL, Service provider shall be held responsible for the same and necessary recovery shall be made subject to maximum 10% of contract price.

9. RESOURCES AND LOGISTICS

Before the start of work, organization chart including bio data of candidates deployed along with summary sheet of qualification / Relevant Field experiences (as per tender requirement) along with number of engineer/ technician/ line man and copy of certificates towards qualification and experiences of the candidate shall be submitted for approval to the officer in charge of the line deployed by Owner. Following resources and logistic will be mobilized to site by contractor:

S No	Manpower	Minimum Qualification
(i)	Team leader / Project Manager	Engineering degree or AMIE with 5 years' experience in relevant field.
(ii)	Field Quality Engineer for foundation, erection and stringing.	Engineering degree with 1 year experience /diploma with 3 years' experience in relevant field.

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(iii)	Support staff: Technician/ line man/ fitter grade for Tower erection, stringing.	<p>(a) Diploma / ITI holder in mechanical, fitter or relevant field/ trades for Tower erection / line stringing works with 2 year experience Transmission line works.</p> <p>Or</p> <p>5 Years experience of TL tower erection / line stringing works.</p> <p>(b) He must have valid height pass Certificate to climb on towers.</p> <p>(c) He should be capable to understand drawing related to Transmission line tower erection/ stringing works.</p>
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Service Provider must deploy suitable vehicles (minimum one Scorpio/Bolero or equivalent) per transmission line package of Owner for site movement, appropriate for successful discharge of its duties as per the scope of work and transport of men /material deployed by Service Provider required for this contract. One AC vehicle with driver shall be provided for the transmission line length up to 100 kms or part thereof as per BOQ. Additional AC Vehicle with driver shall be deployed as per BOQ for the transmission line length varying beyond 100 kms.

Service Provider shall open minimum one site office per transmission line package of Owner suitable for deployed men and material and must have computer or laptop with printer, scanner, office consumables and internet facility.

Service Provider shall provide one Team leader/Project Manager and required nos. of Field Quality Engineers and support staff (Technician/ line man/ fitter grade for Tower erection, stringing) per transmission line package of Owner suitable for successfully carrying out SFQP checks, depending on the work in progress manpower to be deployed such that all working locations are covered. However, minimum 3 nos. engineers/diploma holders, 3 nos. support staff shall be provided for Transmission line length up to 100 Kms line or part thereof. For Transmission line length varying beyond 100 km, additional manpower in respect of activities Tower Foundation, Tower Erection, Stringing and final checking including vehicle shall be provided as per BOQ.

However, contractor shall be free to deploy more number of labours /manpower as per their assessment of work.

Arrangement of all Logistics (like Accommodation, food, communication and office gadgets like computers printer, scanner, mobile phone and office consumables, internet connection etc) to its deployed manpower shall be responsibility of Service Provider. The Service Provider must share mobile numbers of every workforce deployed by him to the officer in charge of Owner. Accordingly, following will be in the scope of service provider for the resources provided:

- a) Lodging, boarding and local conveyance at project site.
- b) PPEs as required (as minimum- Safety helmet, safety shoe and full body double lanyard harness)
- c) Communication gadgets (Cell phones, digital camera, desktop/ laptop with internet connection, printer, scanner etc.) as required.
- d) Inspection & Test equipment like Binoculars, Digital Camera (minimum 50X optical zoom), Earth Resistance Tester, Insulation Tester, Spanner set, measuring tape, vernier calliper, thermometer, litmus paper, Ph meter, torque wrench, total station or DGPS, elcometer etc. with relevant calibration certificate.
- e) Medical facilities, insurance for workman compensation and automobile.
- f) Field quality kits/ PPEs (PPEs to all concerned, digital cameras, binoculars, earth resistance tester, spanner set, thermometers, GPS equipment, compass, torque wrench, measuring tape etc) and any other T&P per transmission line package of Owner, required to fulfil the needs.

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10. TIME SCHEDULE

Time schedule for FQP supervision of various activities involved in construction of transmission line as per BOQ activity wise is as follows:

S. No.	Activity	Start date (L2 date or LOA date whichever is later)	End date (As per L2 schedule)
(i)	Supervision Services for checking implementation of POWERGRID FQP for Tower foundation work	LOA date or as intimated by *Engineer in-charge whichever is later	As per L2 Schedule of Main package.
(ii)	Supervision Services for checking implementation of POWERGRID FQP for Tower Erection work including activity like earthing.	LOA date or as intimated by *Engineer in-charge whichever is later	As per L2 Schedule of Main package.
(iii)	Supervision Services for checking implementation of POWERGRID FQP for Stringing work	LOA date or as intimated by *Engineer in-charge whichever is later	As per L2 Schedule of Main package.
(iv)	Final checking of line after completion including activity of final testing and pre commissioning checks of transmission line	LOA date or as intimated by *Engineer in-charge whichever is later	As per L2 Schedule of Main package.

*Details of Engineer in-charges shall be furnished by owner at the time contract award.

Above referred L2 date/L2 schedule is L2 schedule approved by POWERGRID for LOA of Main erection contractor executing work of transmission line, SFQP for which is under present scope of work.

In case of any delay of main transmission line work from its L2 network i.e beyond SCHEDULE COMPLETION DATE OF MAIN PACKAGE, service provider contract shall be extended for 6 month on same terms and conditions. At expiry of extension period of 6 months, further extension, if required, issue shall be finalized on mutual agreement between POWERGRID and service provider.

11. RESPONSIBILITY OF THIRD-PARTY AGENCY:

- (i) On behalf of the Owner, checking of the quality of construction activities like tower foundation, tower erection, stringing & final Checking (including submission of report) as per approved drawings and Standard specification of transmission line.
- (ii) On behalf of the Owner, witnessing and ensuring the field quality assurance and carry out final checking after completion of transmission line strictly as per the Approved Documents, pertaining to the different stages of the construction and field quality plan.
- (iii) Daily, Weekly and Monthly status and FQR (Field Quality Report) shall be submitted by Service Provider to Owner for all activities as per agreed format with officer-in-charge of the Owner, with clear mention of any exceptions, deviations and/or non-conformity with respect to Approved Documents, if any, as per Owner supplied/ mutually agreed formats.

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- (iv) Any non-conformity by Contractor which is observed by Service Provider at any time, same shall be informed to Engineer-in-charge of Owner and/or other staff involved in construction activity from Owner side.

Any deviations observed during work progress shall be taken care by the site for necessary compliances/rectifications. If any defects/punch points observed at later stage in the work certified by the agency, the responsibility of rectification/compliances for the same lies with the Region/ site and executing main contractor during defects liability period.

12. SPECIFIC EXCLUSIONS FROM THE SCOPE

Exclusions of specific foundations/Tower Erection/Stringing/Final checking if any from the scope, the shall be as decided by the region/site.

13. OTHER TERMS AND CONDITIONS

- (i) To avoid conflict of interest between the Service Provider and the Contractor, followings are strictly not allowed between officials of above two parties deployed for this work either in kind or chargeable basis, except in exceptional / emergency situations.
- Use and share of vehicle,
 - Use and share of facilities or services.
- (ii) Service Provider shall be responsible for all costs pertaining to resources indicated in this document including all statutory and insurance cost and no direct or indirect relationship between Owner and the resources is implied under this LOA.
- (iii) In the event of any additional scope of work, same shall be as per unit rate quoted in contract.
- (iv) If the work is found to be un-satisfactory during the contract period or if the contractor commits default in complying with any of the terms and conditions of the contract, Owner reserves the right to terminate the contract at any time with **14 days' notice** and can get the work done by other agency at the risk and cost of the Service Provider. On termination of contract due to above reasons before the completion period, the service provider fee will be calculated on prorata basis up to date of termination.
- (v) All photographs shall be time stamped and geo-tagged.


14. INTELLECTUAL PROPERTY RIGHT

- (i) All Approved Documents and other relevant document/ data provided to Service Provider or its associate(s) for undertaking relevant tasks, shall be returned to Owner after completion of job or completion/ termination of the contract.
- (ii) All data generated/ used by the Service Provider or its associate(s) which shall be associated with this work shall be the property of Owner. None of the above documents can be published/ utilized / Shared with third party or taken away by the Service Provider or any of their employee/ staff/ partners/sub vendors.
- (iii) Further, such documents shall not be used by the Service Provider for any purpose other than this designated task.

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Standard BOQ format for Engagement of 3rd Party for SFQP checks.

Sl No	Description	Unit	Qty	Unit Price(₹)	Total Price(₹)
A	BOQ for the Transmission Line length upto 100 km or part thereof 01(One) Deployment of 01 Team : Team consists of 01(One) No. Team Leader, Minimum 03 (Three) Nos. Field Quality Engineers, Minimum 03(Three) Nos.Supporting Staff (Technician/ line man/ fitter grade), Minimum 01(One) No. AC Vehicle (Scorpio/Bolero or equivalent) with driver, including mobilization of men ,materials and requisite tools for carrying out FQP related activities as per SFQP and scope of works on the following activities.				
1	Supervision services of Checking/implementation of POWERGRID FQP for Foundation	Nos			
2	Supervision services of Checking/implementation of POWERGRID FQP for Tower Erection	Nos			
3	Supervision services of Checking/implementation of POWERGRID FQP for Stringing work	KM			
4	Final Checking of line after completion including activity of final testing and pre-commissioning checks of transmission lines (Span)	KM			
B	Additional BOQ Items For Transmission Line length varying beyond 100Km				
	Additional Manpower & Vehicles shall be deployed for carrying out FQP related activities as per SFQP and scope of works on the following activities.				
1	Supervision services of Checking/implementation of POWERGRID FQP for Foundation, Tower Erection, Stringing and Final Checking - Field Engineers	Mandays			
2	Supervision services of Checking/implementation of POWERGRID FQP for Tower Erection/Stringing/Final Checking - Supporting Staff (Technician/ line man/ fitter grade)	Mandays			
3	AC Vehicle (Scorpio/Bolero or equivalent) with driver charges	Number of Days			


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